

Human Noun Pluralization in Northern Luzon Languages

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It is a great pleasure for me to be able to offer this paper in honor of Professor Paul Jen-kuei Li, one of the most productive linguists working on the Austronesian languages of Taiwan. I have known Paul since his student days at the University of Hawai‘i many decades ago, and have treasured his friendship and respected the quality of his scholarship ever since. This paper describes some of the derivational processes by which human nouns are pluralized in some of the Northern Luzon, or Cordilleran, languages of the Philippines. Although primarily descriptive, it offers intriguing insights into the ways reduplicative processes have changed as a result of the application of regular sound changes in some of the daughter languages of the family.

1. Plural human nouns in Proto-Northern Luzon. In all Northern Luzon languages, most common nouns can be interpreted as either singular or plural, with plurality being marked either by an accompanying pluralizing nominal form, typically a plural demonstrative or a third person plural pronoun. Most if not all languages, however, have a small class of nouns which have plural forms. This class usually includes common kinship terms such as ‘father’, ‘mother’, ‘child’, ‘sibling’, and ‘grandparent’ or ‘grandchild’. Proto-Northern Luzon probably also had plural forms for these nouns. In many of the daughter languages other human nouns, such as ‘man’, ‘woman’, ‘young man’, ‘young woman’, ‘spouse’, etc., are also pluralizable, either because already by Proto-Northern Luzon the process had been generalized to include such forms, or the generalization has taken place since then. In some languages, various non-human terms, especially those associated with humans, such as paired body parts, and terms for ‘house’, ‘field’, ‘chicken’, and ‘coconut’ are optionally pluralizable. In Proto-Northern Luzon, the plurals of human nouns were derived by a reduplicative process by which the first two segments of the base, C_1V_1 - were repeated.

Most languages retain the rule without change for at least some of the pluralizable terms. These include Ilokano (1), the Central Cordilleran languages Guinaang Bontok (2), Balangaw (3), Ifugao (4), and Kalinga (5), as well as the Southern Cordilleran languages Inibaloi (6) and Pangasinan (7), and the Northern Cordilleran language Gaddang (8). Examples (2)b, (3)b, (5)b, (6)b, and (7)b illustrate non-human nouns that are pluralizable by the same reduplicative process. That the process is still productive in some of the languages is apparent in the reduplication of some Spanish loan words (probably via Ilokano), such as *basol* ‘sin’ (3)c, and *libro* ‘book’ (6)c and (7)c. Limos Kalinga, moreover, has borrowed several reduplicated (plural) Ilokano forms, *lallakay* ‘old men’ and *bakbaket* ‘old woman’, treating them as singular forms, and has added C_1V_1 - reduplication to pluralize them. The Ilokano plural human noun *assawa* ‘spouses’ has also been borrowed by Limos Kalinga but has been reduplicated again with C_1V_1 - to fit the Limos pattern for human noun plurals, as in (5)c.

(1) **Ilokano** (Vanoverbergh 1955: 52)

ʔulitég ¹	/ ʔuʔulitég	‘uncle’	/ ‘uncles’
ʔikit	/ ʔiʔikit	‘aunt’	/ ‘aunts’
kabsát	/ kakabsát	‘sibling’	/ ‘siblings’
gayyém	/ gagayyém	‘friend’	/ ‘friends’

(2) **Guinaang Bontok** (Reid 1976)

a.	ʔalitáʔu	/ ʔaʔalitáʔu	‘uncle’	/ ‘uncles’
b.	líma	/ lilíma	‘arm’	/ ‘arms’
	síkí	/ sisíkí	‘leg’	/ ‘legs’
	faróy ²	/ fafaróy	*‘house’ ³	/ *‘houses’

¹ Glottal stop, although not normally written in the orthographies of the source materials in initial position or intervocally, or has some other representation such as an apostrophe or a hyphen in other word positions, is represented throughout this paper by ʔ, to demonstrate the regular nature of the reduplication.

² Proto-Northern Luzon voiced stops until quite recently were only reflected as such in syllable coda positions in Bontok (and other Central Cordilleran languages). In syllable onsets *b was reflected as Bontok [f], *d was reflected as an alveolar affricate [ts] (*ch*), and *g was reflected as [kʰ] (*kh*). Today, because of the influx of loans from Ilokano and other languages these variants now function as phonemes and are typically represented in the local orthography (Reid 1963, 2005, Himes 1984-85).

³ This pair reflects an earlier semantics. The unreduplicated Bontok term *faréy* now means ‘shelter’, or

(3) **Balangaw** (Shetler 1976: 107-108)

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|----|-------|-----------|-----------|--------------|
| a. | ʔanaʔ | / ʔaʔanaʔ | ‘child’ | / ‘children’ |
| | sonod | / sosnod | ‘brother’ | / ‘brothers’ |
| b. | baləy | / babaləy | ‘house’ | / ‘houses’ |
| | ʔuma | / ʔuʔuma | ‘field’ | / ‘fields’ |
| | tuʔdu | / tutuʔdu | ‘chair’ | / ‘chairs’ |
| | bali | / babali | ‘typhoon’ | / ‘typhoons’ |
| c. | basol | / babasol | ‘sin’ | / ‘sins’ |

(4) **Kiangan Ifugao** (Lambrecht 1978)

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|----|------|----------|---------------|-----------------|
| a. | ʔamá | / ʔaʔamá | ‘father’ | / ‘fathers’ |
| | ʔiná | / ʔiʔiná | ‘mother’ | / ‘mothers’ |
| | ʔapú | / ʔaʔapú | ‘grandparent’ | / ‘grandparent’ |
| | ʔagí | / ʔaʔagí | ‘kin (sg.)’ | / ‘kin (pl.)’ |
| | ʔibá | / ʔiʔibá | ‘companion’ | / ‘companions’ |

(5) **Limos Kalinga** (Ferreirinho 1993: 94)

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|----|-----------|---------------|-------------|---------------|
| a. | ʔabeng | / ʔaʔabeng | ‘child’ | / ‘children’ |
| | ʔanak | / ʔaʔanak | ‘child’ | / ‘children’ |
| | sunod | / susunod | ‘sibling’ | / ‘siblings’ |
| | kapingsan | / kakapingsan | ‘cousin’ | / ‘cousins’ |
| b. | boloy | / boboloy | ‘house’ | / ‘village’ |
| c. | lallakay | / lalallakay | ‘old man’ | / ‘old men’ |
| | bakbakot | / babakbakot | ‘old woman’ | / ‘old women’ |
| | ʔasawa | / ʔaʔassawa | ‘spouse’ | / ‘spouses’ |

(6) **Inibaloi** (Ballard n.d.)

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|----|-------|-----------------------|-----------|--------------|
| a. | ʔama | / ʔaʔama | ‘father’ | / ‘fathers’ |
| | ʔina | / ʔiʔina | ‘mother’ | / ‘mothers’ |
| | ʔanak | / ʔaʔanak | ‘child’ | / ‘children’ |
| | daki | / dalaki ⁴ | ‘man’ | / ‘men’ |
| | biʔi | / bibiʔi | ‘woman’ | / ‘women’ |
| | dakay | / dalakay | ‘old man’ | / ‘old men’ |
| b. | manuk | / mamanuk | ‘chicken’ | / ‘chickens’ |
| c. | libro | / lilibro | ‘book’ | / ‘books’ |

(7) **Pangasinan** (Benton 1971a: 99-100)

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|----|---------|-------------|-----------------|--------------------|
| a. | kanáyon | / kakanáyon | ‘relative’ | / ‘relatives’ |
| | kúya | / kukúya | ‘older brother’ | / ‘older brothers’ |
| b. | nióg | / ninióg | ‘coconut’ | / ‘coconuts’ |
| c. | líbro | / lilíbro | ‘book’ | / ‘books’ |

(8) **Gaddang** (Calimag 1965)

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|--|-------|------------|---------|-----------|
| | bafáy | / bafábbay | ‘woman’ | / ‘women’ |
|--|-------|------------|---------|-----------|

‘home’, as a ‘birdnest’, ‘spiderweb’, ‘uterus’, ‘sheath of a knife’, etc. The reduplicated term means ‘village’. In the village of Guinaang, the term has become a place name referring to the home village and is always preceded by the proper place name determiner, *ad Fabrey* ‘Village’. The presence of cognates in Kankanay *babey* ‘village’, in Limos Kalinga *boboloy* (5)b, and Isneg *babalay* ‘village’, as well as in Southern Cordilleran languages, such as Pangasinan *baley* ‘town’, suggest that this semantic change was already present in Proto-Northern Luzon.

⁴ Reduplication /l/ as /d/ in this form and in the Inibaloi term for ‘old men’ results from different stress patterns between the singular and plural forms. See also footnote 23.

2. Innovations in the marking of plural human nouns in the daughter languages.

2.1. Ilokano. In Ilokano, while some plural human nouns continue to be formed by C_1V_1 -reduplication (see (1) above), other human nouns are pluralized by processes which developed from C_1V_1 -reduplication. In order to understand these processes, it is useful to first consider certain Ilokano reduplicative patterns in other than plural human nouns.

2.1.1. Gemination as a phonological process. Pre-Ilokano and the parent of the Northern Cordilleran languages (Isneg, Gaddang, Ibanag, etc.) strengthened initial syllables of unaffixed disyllabic roots containing a reflex of $*ə$ by geminating the consonant immediately following the vowel.⁵ However, when the form was affixed, gemination did not occur and the unstressed vowel was lost, as in (9)a-c. In Ilokano today, for many of these forms the historically prior underlying root forms are maintained and the phonological processes of vowel loss of affixed forms and medial consonant gemination of unaffixed forms are still operative in the language.

(9) Ilokano (Rubino 2000)

a.	$*ma-$	$bə'tak$	→	mabták	‘to crack’	(cf. betták) ⁶
	$*ma-$	$lə'pəs$	→	malpés	‘to droop’	(cf. leppés)
	$*naka-$	$lə'pəŋ$	→	nakalpéng	‘deafening’	(cf. leppéng)
	$*ma-$	$lə'məs$	→	malmés	‘to drown’	(cf. lemmés)
	$*na-$	$lə'dug$	→	naldóg	‘overripe’	(cf. luddóg)
	$*na-$	$lə'suk$	→	nalsók	‘pierced’	(cf. lussók)
	$*na-$	$lə'tat$	→	naltát	‘loose, unfastened’	(cf. lettát)
	$*na-$	$pə'nu$	→	napnó	‘full’	(cf. punnó)
	$*na-$	$sə'gəd$	→	nasgéd	‘burning, fervent’	(cf. seggéd)
	$*ma-$	$tə'nag$	→	matnág	‘to fall, drop’	(cf. tinnág)
b.	$*<um>$	$bə'tak$	→	bumták	‘to burst, explode’	(cf. betták)
	$*<um>$	$lə'tak$	→	lumták	‘to crack’	(cf. letták)
	$*<um>$	$lə'pəs$	→	lumpés	‘to droop (plants)’	(cf. leppés)
	$*<um>$	$bə'sug$	→	bumsóg	‘to swell’	(cf. bussóg)
	$*<um>$	$lə'gak$	→	lumgák	‘to rise (sun)’	(cf. leggák)
	$*<um>$	$lə'nəd$	→	lumnéd	‘to sink’	(cf. lennéd)
	$*<um>$	$lə'nək$	→	lumnék	‘to set (sun)’	(cf. lennék)
c.	$*lə'gəd$	$-ən$	→	legdén	‘to hide; conceal’	(cf. leggéd)

However, for many roots having the same phonological shape as those illustrated in (9), that is with unstressed $*ə$ as the source of their initial vowel, gemination of their medial consonant is always found regardless of affixation, and vowel loss does not occur, as in (10). For such forms, the geminated consonants must now be considered to constitute part of the underlying phonological form of the root. The phonological rules required for the formation of the forms given in (9) have been lost.

⁵ Ilokano typically maintained the reflex as $/ə/$ (although northern dialects of Ilokano today reflect it as the front vowel $/e/$). Northern Cordilleran languages, however, either lowered $*ə$ to fall together with $*a$, or distinguish it from $*a$ by degree of length.

⁶ The forms with geminated medial consonants given in parentheses are the dictionary lexical entries, and are the citation, base forms of the verbs.

(10) **Ilokano** (Rubino 2000)

- a. *ma- lə'bək > malebbék 'be pounded' (cf. lebbék)
 *ma- lə'kab > malekkáb 'be taken apart' (cf. lekkáb)
- b. *<um> bə'gaŋ > bumeggáng 'to glow (live coal)' (cf. beggáng)
 *<um> bə'ka > bumekká 'to vent (feelings)' (cf. bekká)
- c. *bə'kəl -ən > bekkelén 'to strangle' (cf. bekkél)
 *lə'kəd -ən > lekkedén 'to skein (in weaving)' (cf. lekkéd)
 *lə'nəb -ən > lennebén 'to do the whole thing' (cf. lennéb)
- d. *ʔi- lə'məs > ʔilemmés 'to drown (s.o.)' (cf. lemmés)
 *ʔi- lə'pas > ʔileppás 'to finish' (cf. leppás)
 *ʔi- lə'bən > ʔilebbén 'to stock' (cf. lebbén)

2.1.2. $C_1V_1C_2$ - reduplication. Next, let us consider certain phonological rules associated with $C_1V_1C_2$ - reduplication, or reduplication of the first three segments of a word. This type of reduplication has various functions in Ilokano. It may mark the distributive plurals⁷ of some human nouns (see discussion in 2.1.3 and examples in (17)), as well as non-human nouns, as in (11).

(11) **Ilokano** (Vanoverbergh 1955: 51)

sábung	/ sabsábung	'flower'	/ 'flowers'
balay	/ balbalay	'house'	/ 'houses'
káyu	/ kaykáyu	'tree'	/ 'trees'

With non-completed verbs it primarily marks continuative, or imperfective aspect, while with verbs marked for completive aspect, this reduplication carries a repetitive or distributive meaning (Reid 1992) as in (12)a. It may also mark the comparative degree of adjectival forms. However, when the form has a medial glottal stop, regardless of the function of the reduplication and of the stress pattern of the form which carries it, $C_1V_1C_2$ - reduplication has a shorter variant with a long vowel, C_1V_1 :-, as in (12)b. This has apparently developed from deletion of the reduplicated glottal stop and compensatory lengthening of the previous vowel, since glottal stop codas are unallowed in Ilokano,⁸ just as in most of the Northern and Central Cordilleran languages.

(12) **Ilokano** (Rubino 2000)

- a. * $C_1V_1C_2$ - 'laku → *lakláko* 'selling'
 * $C_1V_1C_2$ - 'síka → *siksíka* 'only you'
- b. * $C_1V_1C_2$ - 'daʔit → **daʔ'daʔit → *da:dáʔit* 'sewing'
 * $C_1V_1C_2$ - sa'ʔu → **saʔ'sa'ʔu → *sa:saʔó* 'speaking'
 * $C_1V_1C_2$ - ba'ʔag → **baʔ'ba'ʔag → *ba:baʔág* 'wearing a loincloth'

2.1.3. Gemination as a morphological process. With this background, we can now discuss the formation of Ilokano plural human nouns other than those cited in (1). Most human nouns in Ilokano are pluralized not by C_1V_1 - reduplication, but by gemination of the consonant which is the onset of the second syllable of the singular

⁷ Benton (1974-75) distinguishes between 'simple' plurals, that is 'more than one', and distributive plurals which have 'an individuating and universal function, with the component "severally and separately"'.

⁸ A medial glottal stop coda in Ilokano, although not present in earlier stages of the language, is now possible, occurring as a variant of *k* or *t* before another consonant (Rubino 2000:xxxiv).

form. Gemination having this function is clearly distinct from gemination as a phonological process described in section 2.1.1 above. Gemination as a morphological process apparently developed from C_1V_1 -reduplication with irregular loss of an unstressed *a* vowel (not from $*ə$) in two high-frequency forms, *babáʔi* ‘woman’ and *laláki* ‘man’,⁹ as in (13), which then became the analogical base for the formation of plural human nouns in other sets of human nouns.¹⁰

(13) **Ilokano (Vanoverbergh 1955:51)**

$*C_1V_1$ - *ba'baʔi* → $**baba'baʔi$ > *babbáʔi* ‘women’ (cf. *babáʔi* ‘woman’)
 $*C_1V_1$ - *la'laki* → $**lala'laki$ > *lalláki* ‘men’ (cf. *laláki* ‘man’)

One of these sets is constituted of high-frequency forms having an initial syllable, either [*ba* or [*la*, which is identical to the initial syllable in the terms for ‘woman’ and ‘man’ respectively, and which has reformed its plural from C_1V_1 -reduplication, to $C_1V_1C_1$ -reduplication apparently by analogy with the forms shown in (13). These are given in (14)a. One other human noun with a different stress pattern and phonological form but which also exhibits this plural reduplication, is shown in (14)b.

(14) **Ilokano (Vanoverbergh 1955: 51)**

- | | | | | | | |
|----|-----------------|---|--------------------|---------------|---|---------------|
| a. | <i>barú</i> | / | <i>babbarú</i> | ‘young man’ | / | ‘young men’ |
| | <i>balásang</i> | / | <i>babbalásang</i> | ‘young woman’ | / | ‘young women’ |
| | <i>bakét</i> | / | <i>babbakét</i> | ‘old woman’ | / | ‘old women’ |
| | <i>lakáy</i> | / | <i>lallakáy</i> | ‘old man’ | / | ‘old men’ |
| b. | <i>táʔu</i> | / | <i>tattáʔu</i> | ‘person’ | / | ‘people’ |

Another set of human nouns, specifically those beginning with an unstressed syllable having a glottal stop onset, is pluralized by gemination of the second consonant of the singular form, as in (15).

(15) **Ilokano (Vanoverbergh 1955: 51)**

<i>ʔamá</i>	/	<i>ʔammá</i>	‘father’	/	‘fathers’
<i>ʔiná</i>	/	<i>ʔinná</i>	‘mother’	/	‘mothers’
<i>ʔapú</i>	/	<i>ʔappú</i>	‘grandchild’	/	‘grandchildren’
<i>ʔaná</i>	/	<i>ʔannák</i>	‘child (kin)’	/	‘children’
<i>ʔasáwa</i>	/	<i>ʔassáwa</i>	‘spouse’	/	‘spouses’
<i>ʔubíng</i>	/	<i>ʔubbíng</i>	‘child (age)’	/	‘children’

The last of the forms in (15) is interesting because it is reconstructible to PNLzn as $*ʔə'biŋ$ ‘child’, and would have been regularly reflected in Ilokano with gemination of the medial consonant following $*ə$, as $*ʔəbbiŋ$ ‘child’, as described above in 2.1.1. However a form such as this would have been singular and could not have been distinguished from a plural form with gemination. Ilokano solved this problem by irregularly reflecting the form as *ʔubíng* which did not require gemination in the singular, and allowed for morphological gemination to produce the current plural form *ʔubbíng*.

There are two possible explanations to account for the historical development of the plurals in (15). One is that they are the result of C_1V_1 -reduplication with irregular

⁹ The initial C_1V_1 -reduplication in the forms meaning ‘woman’ and ‘man’ is found throughout the Philippines and must be reconstructed at least as far back as Proto-Extra-Formosan.

¹⁰ Although the vowel loss in the forms shown in (13) is irregular, the context in which it occurs, that is a weak vowel between two identical consonants, is a typical context for vowel deletion.

vowel loss (the initial vowel is typically not a reflex of *ə).¹¹ The other is that they are the result of an analogical extension of the plurals of the forms for ‘man’ and ‘woman’. The latter is the preferred explanation for the following reason. For these forms, vowel loss would have resulted in a *-ʔC- medial consonant cluster, which, as noted above, would have been an unallowable consonant sequence in Ilokano. One would expect that the *-ʔC- sequences resulting from C_1V_1 -reduplication and vowel loss would have been treated in the same way as the same sequences resulting from $C_1V_1C_2$ -reduplication, that is deletion of the glottal stop and compensatory lengthening of the reduplicated vowel, as discussed in 2.1.2 above, and exemplified in (12)b. However the end points of such a derivation (shown in (16)) are not plural human nouns in Ilokano, but terms of address, and are probably not the result of C_1V_1 -reduplication.¹²

(16) **Ilokano**

* C_1V_1 - ʔa'ma → ʔaʔa'ma → **ʔaʔ'ma → 'ʔa:ma ‘fathers’ (cf. ʔáma ‘Father’)
 * C_1V_1 - ʔi'na → ʔiʔi'na → **ʔiʔ'na → 'ʔi:na ‘mothers’ (cf. ʔína ‘Mother’)

Instead, the medial glottal stop in these forms apparently assimilated irregularly to the following consonant resulting in geminate consonants, on the basis of analogy with the forms for ‘men’ and ‘women’ given in (13).

These plural human nouns can be rederived as distributive plurals with $C_1V_1C_2$ -reduplication, as noted in section 2.1.2 above, and exemplified in (17).

(17) **Ilokano** (Vanoverbergh 1955: 51)

ʔama	/ ʔamʔamma	‘father’	/ ‘fathers’
ʔanak	/ ʔanʔannak	‘offspring (sg.)’	/ ‘offspring (pl.)’
ʔubing	/ ʔubʔubbing	‘child’	/ ‘children’

2.2. Guinaang Bontok. In Guinaang Bontok, C_1V_1 -reduplication of human nouns has been replaced in a subset of these terms by glottal stop infixation before the final vowel to mark their plural forms, as in (18)a-b.

(18) **Guinaang Bontok**¹³

a.	ʔamá	/ ʔamʔá	‘father’	/ ‘fathers’
	ʔiná	/ ʔinʔá	‘mother’	/ ‘mothers’
	ʔapú	/ ʔapʔú	‘grandparent’	/ ‘grandparents’
	ʔaná	/ ʔanʔák	‘child’	/ ‘children’
	ʔətád	/ ʔətʔád	‘sibling’	/ ‘siblings’
	ʔakhí	/ ʔagʔí	‘kin (sg.)’	/ ‘kin (pl.)’
	ʔiŋód	/ ʔiŋʔód	‘sister-in-law’	/ ‘sisters-in-law’
b.	ʔasáwa	/ ʔasawʔá	‘spouse’	/ ‘spouses’

To understand how this innovation has developed it is necessary to first examine some of the morphophonemic processes still functioning in the language.¹⁴

¹¹ But see discussion of ʔubing ‘child’.

¹² Terms of address for ‘Mother’ and ‘Father’ in Guinaang Bontok (and other Central Cordilleran languages) are also stressed on the initial syllable and have a lengthened vowel. These, however, are not the result of loss of glottal stop, since in Bontok unallowable glottal stop initial clusters are metathesized.

¹³ Throughout this paper, where the source of data is not specified, the forms are taken either from Reid (1976), or from the author’s fieldnotes.

¹⁴ For a discussion of Guinaang Bontok reduplication presented within the framework of prosodic

2.2.1. Vowel loss and metathesis. In Bontok, as in many Northern Luzon languages, an unstressed vowel whose source was PNLzn *ə in any syllable following a vowel-final prefix was deleted, as in Guinaang Bontok (19)a (see also Ilokano examples in (9)). If the initial consonant of the unstressed syllable was a glottal stop, this resulted in a *-ʔC- medial consonant cluster, which in Central Cordilleran languages was an unallowable sequence. Various processes developed in these languages to form allowable phonological sequences. In Guinaang Bontok, a rule still operative in the language metathesized such clusters, as in (19)b.

(19) Guinaang Bontok

- | | | | | | |
|----|-------------|---|------------|-----------------------------|----------------------|
| a. | *na- bə'lay | > | *na- b'lay | <i>nabráy</i> ¹⁵ | ‘tired’ |
| | *ka- də'wa | > | *ka- du'wa | <i>kadwá</i> | ‘half’ |
| | *CV- tə'lu | > | *CV- tu'lu | <i>tutlú</i> | ‘do three at a time’ |
| b. | *na- ʔə'məs | > | **ma-ʔ'məs | → <i>namʔés</i> | ‘bathed’ |
| | *ka- ʔə'pat | > | **ka-ʔ'pat | → <i>kapʔát</i> | ‘quarter’ |
| | *CV- ʔə'pat | > | **ʔə-ʔ'pat | → <i>ʔepʔát</i> | ‘do four at a time’ |
| | *ʔi- ʔə'məs | > | **ʔi-ʔ'məs | → <i>ʔimʔés</i> | ‘bathe with’ |

In Guinaang Bontok, most nouns having human reference are disyllabic with glottal stop onsets and an unstressed vowel in the initial syllable. Although unstressed vowels (except for /ə/) were typically not deleted when a form was affixed, when human nouns were pluralized with *C₁V₁*-reduplication, they were deleted, requiring also that metathesis re-order the resulting *-ʔC- sequence, as in (18)a. However, the consistency of the resulting pattern of human plural nouns having final syllables with glottal stop onsets, has resulted in the process being reinterpreted as one of glottal stop infixation preceding the final vowel of the form, rather than as a sequence of three phonological processes: reduplication, deletion of an unstressed vowel, and metathesis.¹⁶ That this is indeed what has occurred can be seen from (18)b, in which, if *C₁V₁*-reduplication was still operating, the plural would be either *ʔaʔasáwa* or *ʔasʔáwa* (< **ʔaʔsáwa).

2.3. Human nouns in Southern Cordilleran languages.

2.3.1. Stress-shift as a pluralizing mechanism for human nouns. In Pangasinan, a number of human nouns are pluralized by fronting stress from the ultimate syllable to the penult.¹⁷ This stress-shift process apparently developed from loss of an unstressed

morphology, see Thurgood (1997) and from a direct Optimality Theory analysis, by Golston and Thurgood (2003).

¹⁵ Until quite recently, Guinaang Bontok *l* and *r* were conditioned variants of the phoneme /l/. Today, primarily because of the influx of loans from Ilokano and other languages they function as separate phonemes, and are distinguished by native speakers in their local orthography (Reid 1963, 2005).

¹⁶ The derivational processes of three of the forms listed in (18) were originally as follows:

*ʔa'ma ‘father’	*ʔi'na ‘mother’	*ʔa'nak ‘offspring’	
1. ʔaʔa'ma	ʔiʔi'na	ʔaʔa'nak	<i>C₁V₁</i> -reduplication
2. ʔaʔ'ma	ʔiʔ'na	ʔaʔ'nak	<i>weak vowel loss</i>
3. ʔam'ʔa	ʔin'ʔa	ʔan'ʔak	<i>metathesis</i>
‘fathers’	‘mothers’	‘children’	

¹⁷ Benton (1974-75: 9) noted the interesting similarity between stress shift as a device for marking plurality in human nouns in Pangasinan and lengthening of initial vowels in some human nouns in Maori and other Polynesian languages with the same function. I consider these cases to be instances of independent innovation in Polynesian, rather than shared innovations with Philippine languages.

medial vowel in glottal stop initial forms subsequent to C_1V_1 -reduplication. This produced a medial cluster, the glottal stops of which were subsequently elided with compensatory lengthening of the preceding vowel. For example, P-NLzn $*ʔaʔanák > *ʔaʔnák > \text{Png } a:nak$ ‘children’, see (20). Such forms apparently became an analogical base for other pluralizable nouns,¹⁸ and were one of the factors that resulted in the redevelopment of contrastive accent in Pangasinan.¹⁹

(20) **Pangasinan** (Benton 1971a: 99-103)

anák	/ ának	‘child’	/ ‘children’
agí	/ *ági ²⁰	‘younger sibling’	/ ‘younger siblings’
ogáw	/ *úgaw	‘child’	/ ‘children’
toó [toʔo]	/ too [to:ʔo]	‘person’	/ ‘people’

2.3.2. Stress shift in other Northern Luzon languages. Stress shift may also have been the mechanism which resulted in the unusual pluralization process which affects some human nouns in Inibaloi, in which pairs of related consonants alternate between singular and plural forms, since generally speaking, $*d/$ became r as the onset of an unstressed syllable and ch as the onset of a stressed syllable, while $*l/$ became d as the onset of a stressed syllable, but remained l as the onset of an unstressed syllable, as in (21).²¹

¹⁸ A similar process produced initial syllable vowel length in Kapampangan plural nouns:

Kpm. ʔanak	/ ʔa:nak	‘child’	/ ‘children’
lalaki	/ la:laki	‘man’	/ ‘men’
babaʔi	/ ba:baʔi	‘woman’	/ ‘women’
dalaga	/ da:laga	‘young woman’	/ ‘young women’

¹⁹ Zorc (1979) gives a thorough account of the loss and redevelopment of contrastive word accent in Pangasinan, also noting that loss of gemination with compensatory vowel lengthening was a contributing factor (see also Himes 1998: 123). However, he assumes that Pangasinan had earlier geminate consonants in its plural nouns, as Ilokano has today. There is no evidence that such was the case. Positing loss of glottal stop as the basis for the penultimate length in these forms, with subsequent analogical extension of penultimate length to forms that did not have initial glottal stop, such as ‘person’, ‘neighbor’ and ‘carabao (water buffalo)’, adequately accounts for the data, and does not require an account of the development of non-existent Pangasinan geminate clusters.

²⁰ This stress-shifted form, and that meaning ‘children’ are not found in Benton’s (1971b) dictionary and are apparently no longer in use, but they form the base of the reduplicated plurals given in (24).

²¹ Himes (1998: 127) notes that in northern dialects of Inibaloi today, $*d/$ has become a voiceless palatal affricate (represented in Inibaloi local orthography as ch) in word initial position, immediately after a consonant, and intervocalically after a short or unstressed vowel, while in the same environments $*l/$ has become $d/$. In intervocalic positions when preceded by a stressed vowel, $*l/$ is reflected as $/l/$, while $*d/$ has become $/r/$. $*l/$ and $*d/$ remain unchanged in syllable- or word final-positions.

(21) **Inibaloi** (Himes 1998)

marikit	/ machikit ²²	‘young woman’	/ ‘young women’
balodaki	/ badolaki ²³	‘young man’	/ ‘young men’
orichiyán	/ ochiriyán ²⁴	‘younger sibling’	/ ‘younger siblings’

Several languages spoken by Negritos, including Central Cagayan Agta, Casiguran Dumagat (Agta) and Northern Alta, a language with which it has had close contact (Reid 1991), have also, like Pangasinan, lost inherited contrastive stress, and subsequently redeveloped it. They pluralize a few of their human nouns, also like Pangasinan, by shifting stress, as in (22) and (23).

(22) **Central Cagayan Agta** (Oates and Oates 1955)

babbay	/ baabay	‘woman’	/ ‘women’
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(23) **Northern Alta**

anáʔ	/ ánaʔ	‘child’	/ ‘children’
madíʔit	/ maddíʔét	‘young woman’	/ ‘young women’

2.3.3. $C_1V_1C_2$ - reduplication for human noun plurals. In Pangasinan, just as in Ilokano (and possibly borrowed from Ilokano, examples (17) above), a pattern of $C_1V_1C_2$ - reduplication now combines with some of the older, stress-shifted plurals, as in (24)a, as well as with other non-pluralized nouns, to derive distributive forms, as in (24)b.

(24) **Pangasinan** (Benton 1971a)

a.	agí	/ *a:gi >	agági	‘younger sibling’	/ ‘younger siblings’
	ogáw	/ *u:gaw >	ogógaw ²⁵	‘child’	/ ‘children’
	toó	/ totóo ²⁶		‘person’	/ ‘people’
	duég	/ deréweg ²⁷		‘carabao’	/ ‘carabaos’

²² From earlier *màdikít / *madíkit. The stress on the first member of this pair would be consistent with the apparent precursor of a Bontok cognate *māmagkhit* ‘young woman’ (< $C_1V_1C_2$ - *màdikít) and with the Tagalog cognate, *díkít* ‘radiant beauty’ (Panganiban 1966). The Northern Alta cognate *madíʔit* ‘young woman’, however, has a different stress pattern, as does the Kiangnan Ifugao form *madíkit* ‘beautiful’. Contact between speakers of an Alta language and Ifugao forms the theme of the Amganad Ifugao text *Hi Puddunan* published in Madrid (1980: 117-121).

²³ From earlier *bàluláki / *balùlákí. The first member of this pair is a compound from PNLu *baRú láki ‘young male’, from which also developed Ilk *barú*, BonG *fabʔarú*, Ifg *bullaki*, and similar forms throughout the family.

²⁴ From earlier *ʔùdidiyán / ʔudidiyán (cf. IfgK *udidíyan* ‘the youngest of the family’).

²⁵ This form is given as *agagi* ‘younger siblings’ in Benton 1971a, but is listed as *ogógaw* in Benton (1971b, and 1971c).

²⁶ PNLzn *táʔu ‘person’ > Pre-Png *tuʔú / *túʔu ‘person’ / ‘people’. With $C_1V_1C_2$ - distributive reduplication and regular loss of glottal stop, $C_1V_1C_2$ - + *túʔu > *tuʔtúʔu > Png *totóo*.

²⁷ As noted by Zorc (1979: 251), the original form for water buffalo was probably *dəwəg. My account of the development of the plural form is however different from that proposed by Zorc. The original plural would have been *dəwəg, by analogy with vowel initial forms. The rules associated with $C_1V_1C_2$ - reduplication in Pangasinan were probably the same as those found in Central Cordilleran languages such as Bontok, Balangaw and Kalinga, that is, medial glides were reduplicated as glottal stop. So $C_1V_1C_2$ - + *dəwəg would have produced *dəʔdəwəg, and with regular loss of glottal stop and rhotacization, the present form *deréweg*.

b.	kábay ²⁸	/ kabkabay	‘neighbor’	/ ‘neighbors’
	kábat ²⁹	/ kabkabat	‘acquaintance’	/ ‘acquaintances’

$C_1V_1C_2$ - reduplication (or V_1C_1 - reduplication in the case of originally glottal stop initial bases) as a plural derivation for human nouns, or nouns closely associated in some way with humans is also found in other Northern Luzon languages, including Central Cagayan Agta (25) and in Isneg (26).

(25) **Central Cagayan Agta** (Healey 1960)

karúba	/ karkarúba	‘neighbor’	/ ‘neighbors’
ulu	/ ululu	‘head’	/ ‘heads’
uffu	/ ufuffu	‘thigh’	/ ‘thighs’
takki	/ taktakki	‘leg’	/ ‘legs’

(26) **Isneg** (Vanoverbergh 1972)

abbíng	/ ababbíng	‘child’	/ ‘children’
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2.3.4. $C_1V_1C_2V_2$ - reduplication for human noun plurals. A $C_1V_1C_2V_2$ - reduplicative process for plural marking is found in Pangasinan. There is also evidence that in the parent language of Bontok, Kankanay and Balangaw the same process was also used for plural marking of some nouns. In Pangasinan (27), this reduplication applies to “objects or animals having close connections with the domestic unit, as well as words for fingers and toes” (Benton 1971a: 101). Unlike the terms that are affixed with $(C_1)V_1(C_2)$ - shown in (24), the reduplicative base is not stress-shifted, suggesting that this process predates the development of the processes which would have resulted in stress shifting in these forms.

(27) **Pangasinan** (Benton 1971a)

asó	/ asóasó	‘dog’	/ ‘dogs’
pusá	/ pusápusá	‘cat’	/ ‘cats’
otót	/ otóotót	‘rat’	/ ‘rats’
manók	/ manómanók	‘chicken’	/ ‘chickens’
bakés	/ bakébakés	‘monkey’	/ ‘monkeys’
gamét	/ gamégamét	‘finger’	/ ‘fingers’
bangá	/ bangábangá	‘water jar’	/ ‘water jars’

In the parent language from which Guinaang Bontok and Balangaw developed, $C_1V_1C_2V_2$ - reduplication probably originally pluralized only two terms, those for ‘man’ and ‘woman’. The unstressed second vowel of the reduplication was lost, resulting in geminate consonant clusters in each of the forms, as in (28) and (29). That the geminate consonants in these forms was the result of $C_1V_1C_2V_2$ - with loss of an unstressed vowel, rather than simply $C_1V_1C_2$ - reduplication, is apparent from the different phonological processes that are associated with $C_1V_1C_2$ - reduplication. In both languages, when a liquid or a glide is the final segment of $C_1V_1C_2$ - reduplication, regardless of its function, glottal stop substitutes for that segment, with subsequent metathesis with the first segment of the stem in Guinaang Bontok, or loss of the glottal stop in Balangaw in many forms (Reid 1974: 519).

²⁸ From *ka-ábay* ‘one who is near’.

²⁹ From *ka-ábat* ‘one who is met’.

(28) **Guinaang Bontok**

laráki	/ larraráki ³⁰	‘man’	/ ‘men’
fafáʔi	/ fabfafáʔi ³¹	‘woman’	/ ‘women’

(29) **Balangaw** (Shetler 1976)

laláʔe	/ lallaláʔe	‘man’	/ ‘men’
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In Guinaang Bontok, a $C_1V_1C_2-$ / $C_1V_1C_2V_2-$ ‘singular’ / ‘plural’ paradigm developed, forming a small set of adjectival age-group terms, derived from pluralizable human terms. The phonological processes of weak vowel deletion and $-ʔC-$ metathesis (described above),³² produced the expected forms for ‘married men’, ‘married women’, and ‘young people’, as in (30)a. However, the term for ‘old people’ (derived from *ʔapú* ‘grandparent, grandchild), (30)b, appears to be built on a pattern of $-an-$ infixation following the initial consonant, and $-ʔ-$ infixation following the second consonant, the basis for the analogy apparently being the term for ‘children’.³³

(30) **Guinaang Bontok**

a.	ʔamʔamá	/ ʔamamʔá	‘married man’	/ ‘married men’
	ʔinʔiná	/ ʔininʔá	‘married woman’	/ ‘married women’
	ʔanʔaná	/ ʔananʔák	‘young person’	/ ‘young people’
b.	ʔapʔapú	/ ʔanapʔú	‘old person’	/ ‘old people’

Northern Kankanay appears to share at least some of these forms.

(31) **Northern Kankanay** (Hettick and Kent 1967)

ʔamʔama	/ ʔamamʔa	‘old man’	/ ‘forefathers’
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The first two sets of terms in (30)a can be further derived by $C_1V_1C_2V_2-$ reduplication but with an intensive interpretation,³⁴ as in (32).

³⁰ From earlier /lalla'laki/.

³¹ From earlier /babba'baʔi/.

³² The derivational processes are as follows:

ʔa'ma	‘father’	ʔi'na	‘mother’	ʔa'nak	‘offspring’	
1. ʔamaʔa'ma		ʔiniʔi'na		ʔanaʔa'nak		$C_1V_1C_2V_2-$ reduplication
2. ʔamaʔ'ma		ʔiniʔ'na		ʔanaʔ'nak		weak vowel loss
3. ʔamam'ʔa		ʔinin'ʔa		ʔanan'ʔak		metathesis
	‘married men’	‘married women’		‘young people’		

³³ The pattern of reduplication for singular and plural age group nouns in Bontok shown in (30)b also characterizes certain other adjectival nouns, such as:

ʔəwʔəw'wa	/ ʔənəw'ʔa	‘wide (object) sg.’	/ ‘wide (object) pl.’
ʔasʔas'tik	/ ʔanas'tik	‘short (object) sg.’	/ ‘short (object) pl.’
ʔanʔan'chu	/ ʔanan'chu	‘long (object) sg.’	/ ‘long (object) pl.’
fanfan'ʔig	/ fanan'ʔig	‘small (object) sg.’	/ ‘small (object) pl.’
chakcha'kər	/ chanak'kər	‘big (object) sg.’	/ ‘big (object) pl.’

³⁴ Although the derivation is described here as reduplication of the first four segments of the base, in fact it is complete derivation of the first two syllables of the base, less any consonantal coda of the second syllable. Note the term for ‘young people’ in (30)a, which does not reduplicate the final consonant of the base, also the terms for ‘very old man’ and ‘very old men’, and ‘very old woman’ and ‘very old women’ in (32), which reduplicate the first and second syllables of the base, without the final coda of the second syllable.

(32) **Guinaang Bontok**

ʔamʔaʔamʔamá	/ ʔamaʔamamʔá	‘very old married man’	/ ‘very old married men’
ʔinʔiʔinʔiná	/ ʔiniʔininʔá	‘very old married woman’	/ ‘very old married women’

Human nouns in Guinaang Bontok which do not begin with a glottal stop have a different pattern for the plural, retaining the inherited C_1V_1 - reduplication, but geminating the second consonant of the base, apparently by analogy with *mamagkhít*, the inherited term for ‘young unmarried women’ (33);³⁵ the other term for ‘young woman’ is derived from *farásang*, the Guinaang Bontok pronunciation of *balásang*, a widespread borrowing of Ilokano, with $C_1V_1C_2$ - reduplication.³⁶

(33) **Guinaang Bontok**

mamagkhít	/ mamagkhít	‘young unmarried woman’	/ ‘young unmarried women’
fabʔarásang	/ fafarrásang	‘young unmarried woman’	/ ‘young unmarried women’
fabʔarú	/ fafarrú	‘young unmarried man’	/ ‘young unmarried man’

Vanoverbergh (1933) includes several Lepanto Kankanay forms (34) which correspond to the reduplicated singular forms in Guinaang Bontok, one of which (‘forefathers’) is given a plural translation. The dictionary however does not include other plural nouns of this type.

(34) **Lepanto Kankanay** (Vanoverbergh 1933)

ʔinʔiná	‘old woman, not yet past child-bearing’ (cf. <i>iná</i> ‘mother’)
ʔamʔamá	‘old man’ (cf. <i>amá</i> ‘father’)
ʔapʔapó	‘forefathers, ancestors’ (cf. <i>apó</i> ‘grandparent, grandsire’)

In Balangaw, remnants of an earlier “age-group” class are found in only four forms. These have $C_1V_1C_2$ - singular forms, and a plural form which uses the reduplicated singular form as a base for infixation with either *-an-* or *-in-* (35).

(35) **Balangaw** (Shetler 1976)

ʔinʔina	/ ʔininʔina	‘woman’	/ ‘women’
ʔamʔama	/ ʔanamʔama	‘man’	/ ‘men’
babalasang	/ banabalasang	‘young woman’	/ ‘young women’
babulu	/ banabulu	‘young man’	/ ‘young men’

The source of the infixes is probably from the reanalysis of earlier $C_1V_1C_2V_2$ -reduplicated forms with weak vowel deletion and resulting metathesis of glottal stop initial consonant clusters, as described above for Guinaang Bontok. Infixation in Balangaw, however, is being generalized to even the earlier C_1V_1 - reduplicated plural human nouns. The original metathesized glottal stop has been retained following obstruents (36)a, but has assimilated to a preceding nasal, forming a geminate nasal cluster, as in (36)b.

³⁵ From PNLzn $*C_1V_1$ - + $*madikít$ > $*mamadikít$ > $*mamadkít$ > $*mamagkít$ > $*mamaggít$ > Bon *mamagkhít*.

³⁶ The derivation of the last two pairs of terms in (33) is as follows:

fa'rasaŋ	‘young woman’	fa'ru	‘new, young’
1. farfa'rasaŋ		farfa'ru	$C_1V_1C_2$ - reduplication
2. faʔfa'rasaŋ		faʔfa'ru	liquid replacement
3. fabʔa'rasaŋ		fabʔa'ru	metathesis
‘unmarried woman’		‘unmarried man’	

(36) **Balangaw** (Shetler 1976)

- | | | | | |
|----|------|----------|-----------|--------------------------------|
| a. | ʔiba | / *ʔibʔa | > ʔinibʔa | ‘companion’ / ‘companions’ |
| | ʔapo | / *ʔapʔo | > ʔanapʔo | ‘grandparent’ / ‘grandparents’ |
| | ʔagi | / *ʔagʔi | > ʔanagʔi | ‘sibling’ / ‘siblings’ |
| b. | ʔina | / *ʔinna | > ʔininna | ‘mother’ / ‘mothers’ |
| | ʔama | / *ʔamma | > ʔanamma | ‘father’ / ‘fathers’ |

A subcategorization of human nouns into feminine and masculine seems to be developing in Balangaw, with *-in-* marking feminine plurals, by generalizing the marking of ‘mothers’, and *-an-* marking masculine plurals, by analogy with the marking of ‘fathers’. Replacement has taken place in the term for ‘women’, (37)a, but alternation exists in some forms, as *-in-* begins to replace *-an-* in other feminine nouns, and *-an-* is infixed into forms that previously were unaffixed, as in (37)b.

(37) **Balangaw** (Shetler 1976)

- | | | | |
|----|----------------|--------------|-------------------|
| a. | bubaʔe | / binubaʔe | ‘woman’ / ‘women’ |
| b. | banabalasang ~ | binabalasang | ‘young women’ |
| | lallalaʔe ~ | lanlaʔe | ‘young men’ |

In Ifugao also, there appears to be a remnant of an age-group class in the terms for ‘old man’ and ‘old woman’ with the singular forms derived with $C_1V_1C_2$ -reduplication as is seen also in the other Nuclear Cordilleran languages, Guinaang Bontok (30), Kankanay (34) and Balangaw (35). The plurals are formed by using the reduplicated singular forms as the base for rederivation with C_1V_1 -reduplication, as in (38).

(38) **Kiangnan Ifugao** (Lambrecht 1978)

- | | | |
|---------|-------------|---------------------------|
| ʔamʔamá | / ʔaʔamʔamá | ‘old man’ / ‘old men’ |
| ʔinʔiná | / ʔiʔinʔiná | ‘old woman’ / ‘old women’ |

As in Balangaw, *-in-* has developed as a pluralizing infix in Batad Ifugao. It appears in at least two forms, shown in (39).

(39) **Batad Ifugao** (Newell 1993)

- | | | |
|--------|------------|---------------------------|
| lalāʔi | / linalāʔi | ‘old man’ / ‘old men’ |
| bubāʔi | / binubāʔi | ‘old woman’ / ‘old women’ |

In some dialects of Isneg there are pairs of human nouns derived with $C_1V_1C_2$ -reduplication as the singular form and with the plural formed either by $C_1V_1C_2V_2$ -reduplication (40)a,³⁷ corresponding to the Guinaang Bontok reduplicative pattern, or by C_1V_1 -reduplication (40)b, as in some dialects of Ifugao, providing tantalizing evidence that perhaps an “age-group” reduplicative pattern originally developed in Proto-Northern Luzon. Similarly, the short vocabulary of Oates and Oates (1955) of Central Cagayan Agta shows several singular human nouns with $C_1V_1C_2$ -reduplication, as in (41).

(40) **Isneg** (Vanoverbergh 1972)

- | | | | |
|----|----------|--------------|-----------------------|
| a. | ʔanʔanaʔ | / ʔanaʔanaʔ | ‘child’ / ‘children’ |
| b. | laʔlakay | / lalaʔlakay | ‘old man’ / ‘old men’ |

³⁷ Vanoverbergh’s K and M dialects (Vanoverbergh 1972: 8, 63)

(41) **Central Cagayan Agta** (Oates and Oates 1955)

balbalaataang	‘adolescent’ (cf. balataang ‘unmarried girl, virgin’)
baʔbaaʔat	‘old woman’
laʔlaaʔay	‘old man’

3. Conclusion. Most of the derivational processes described in this paper have developed from the application of reduplicative templates inherited from Proto-Northern Luzon, or earlier. The presence of C_1V_1 -reduplication on plural human nouns throughout the family is clear evidence of its reconstructibility to the parent language. Yet a considerable number of alternate patterns of pluralization have developed as a result of the application of regular sound rules (such as the deletion of unstressed vowels and glottal stop) following reduplication of the initial segments. The resulting surface forms are now apparently treated as underlying forms, the patterns of which have been extended in some cases to human nouns whose plural forms cannot otherwise be explained.

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